

CLAIMS

1. A method for controlling the internal circumference of an anatomic orifice or lumen, comprising the steps of:
 - 5 stopping the flow of physiological fluids through an anatomic orifice or lumen;
 - creating an incision in the body of a patient to provide access to a desired anatomic orifice or lumen;
 - securing an annular ring to the tissue around said anatomic orifice or lumen;
 - 10 closing said incision;
 - resuming the flow of physiological fluids through said anatomic orifice or lumen; and
 - adjusting the circumference of said annular ring to control the internal circumference of said anatomic orifice or lumen,
 - 15 using the flow of physiological fluids through said anatomic orifice or lumen as a factor in adjusting said circumference.
2. The method of Claim 1, wherein said anatomic orifice or lumen is a heart valve.
- 20 3. The method of Claim 1,
 - wherein said annular ring comprises teeth on at least a portion thereof,
 - 25 wherein said annular ring has a gear operatively associated therewith, and
 - wherein said gear and said teeth are arranged such that rotating said gear effects movement of a first end of said annular ring with respect to a second end of said annular ring to adjust the circumference thereof; and
 - 30 wherein said step of adjusting the circumference of said annular ring to control the internal circumference of said anatomic orifice or lumen comprises the step of rotating said gear.

4. The method of Claim 3, wherein said step of rotating said gear comprises the step of rotating said gear from a location outside said closed incision.

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5. The method of Claim 4, wherein said step of rotating said gear from a location outside said closed incision comprises the step of rotating said gear with an elongated tool having a first end engaging said gear and a second end extending outside said closed incision.

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6. The method of Claim 5, further comprising the step, subsequent to said step of adjusting the circumference of said annular ring, of uncoupling said elongated tool from said gear and withdrawing said elongated tool, leaving said annular ring in place.

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7. The method of Claim 4, wherein said step of rotating said gear from a location outside said closed incision comprises the step of actuating a microelectric motor in driving engagement with said gear from outside said closed incision.

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8. A method for controlling the internal circumference of an anatomic orifice or lumen, comprising the steps of:

stopping the flow of physiological fluids through an anatomic orifice or lumen;

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securing an annular ring to the tissue around said anatomic orifice or lumen;

resuming the flow of physiological fluids through said anatomic orifice or lumen; and

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adjusting the circumference of said annular ring to control the internal circumference of said anatomic orifice or lumen, using the flow of physiological fluids through said anatomic orifice or lumen as a factor in adjusting said circumference.

9. The method of Claim 8, wherein said anatomic orifice or lumen is a heart valve.

10. The method of Claim 8,
5 wherein said annular ring comprises teeth on at least a portion thereof,
wherein said annular ring has a gear operatively associated therewith, and
wherein said gear and said teeth are arranged such that rotating
10 said gear effects movement of a first end of said annular ring with respect to a second end of said annular ring to adjust the circumference thereof; and
wherein said step of adjusting the circumference of said annular ring to control the internal circumference of said
15 anatomic orifice or lumen comprises the step of rotating said gear.

11. The method of Claim 10, wherein said step of rotating said gear comprises the step of rotating said gear with an elongated
20 tool having a first end engaging said gear and a second end extending to a location outside said patient.

12. The method of Claim 11, further comprising the step, subsequent to said step of adjusting the circumference of said annular
25 ring, of uncoupling said elongated tool from said gear and withdrawing said elongated tool, leaving said annular ring in place.

13. The method of Claim 10, wherein said step of rotating said gear from a location outside said closed incision comprises the
30 step of actuating a microelectric motor in driving engagement with said gear.

14. A method for controlling the internal circumference of an anatomic orifice or lumen, comprising the steps of:

creating an incision in the body of a patient to provide access to
a desired anatomic orifice or lumen;
securing an annular ring to the tissue around said anatomic
orifice or lumen;
5 closing said incision;
adjusting the circumference of said annular ring to control the
internal circumference of said anatomic orifice or lumen.

15 15. The method of Claim 14, wherein said anatomic orifice
or lumen is a heart valve.

16. The method of Claim 14,
wherein said annular ring comprises teeth on at least a portion
thereof,
15 wherein said annular ring has a gear operatively associated
therewith, and
wherein said gear and said teeth are arranged such that rotating
said gear effects movement of a first end of said annular ring
with respect to a second end of said annular ring to adjust the
20 circumference thereof; and
wherein said step of adjusting the circumference of said
annular ring to control the internal circumference of said
anatomic orifice or lumen comprises the step of rotating said
gear.

25 17. The method of Claim 16, wherein said step of rotating
said gear comprises the step of rotating said gear from a location
outside said closed incision.

30 18. The method of Claim 17, wherein said step of rotating
said gear from a location outside said closed incision comprises the
step of rotating said gear with an elongated tool having a first end
engaging said gear and a second end extending outside said closed
incision.

19. The method of Claim 18, further comprising the step, subsequent to said step of adjusting the circumference of said annular ring, of uncoupling said elongated tool from said gear and withdrawing said elongated tool, leaving said annular ring in place.

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20. The method of Claim 17, wherein said step of rotating said gear from a location outside said closed incision comprises the step of actuating a microelectric motor in driving engagement with said gear from outside said closed incision.

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21. A method for controlling the internal circumference of an anatomic orifice or lumen, comprising the steps of:

positioning an annular implant onto a positioning apparatus in a collapsed condition;

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advancing a forward end of said positioning apparatus through natural or surgically-created openings in the body of a patient until said forward end of said positioning apparatus lies adjacent an anatomic orifice or lumen whose circumference is desired to be adjusted;

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manipulating said positioning apparatus to open said annular implant into an expanded condition;

maneuvering said positioning apparatus until said expanded annular implant is positioned against the tissues surrounding said anatomic orifice or lumen;

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fastening said expanded annular implant to the tissues surrounding said anatomic orifice or lumen; and

adjusting the circumference of said annular implant to control the circumference of said anatomic orifice or lumen.

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22. The method of Claim 21, wherein said annular implant comprises a plurality of barbs projecting therefrom, and

wherein said step of fastening said expanded annular implant to the tissues surrounding said anatomic orifice or lumen

comprises the step of pressing said barbs into the tissues surrounding said anatomic orifice or lumen.

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